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## **Montgomery County Special Inspections Program**



# **MONTGOMERY COUNTY, MARYLAND**

## **Department of Permitting Services Division of Building Construction**

255 Rockville Pike, 2nd Floor, Rockville, Maryland 20850

## **SPECIAL INSPECTIONS PROGRAM**

**(FORMERLY COMPLEX STRUCTURES PROGRAM)**

## CHAPTER 1 ADMINISTRATION

### 1.1 INTRODUCTION

The purpose of this document is to define the Montgomery County's Special Inspection Program (SIP) procedures as required by, and in accordance with, the Montgomery County Code and the 2012 International Building Code (IBC):

### 1.2 STRUCTURES AND BUILDING ELEMENTS SUBJECT TO SPECIAL INSPECTIONS

The SIP shall apply to newly constructed building elements and modifications to existing building elements, newly constructed and modifications to foundation elements, and element fabrication procedures that are subject to special inspections as required by the IBC and the County requirements. Special inspections are required for:

- Inspection of fabricators in accordance with IBC 1704.2.5
- Structural steel construction in accordance with IBC 1705.2.1, the quality assurance inspection requirements of AISC 360 and this manual.
- Steel construction other than structural steel in accordance with IBC 1705.2.2
- Concrete construction in accordance with IBC 1705.3 and this manual.
- Precast concrete construction in accordance with IBC 1705.3 and this manual.
- Masonry construction in accordance with IBC 1705.4, the quality assurance inspection requirements of TMS 402/ACI 530/ASCE 5 and TMS 602/ACI 530.1/ASCE 6 and this manual.
- Wood construction in accordance with IBC 1705.5
- Soils and foundation construction in accordance with IBC 1705.6 and this manual.
- Driven deep foundations in accordance with IBC 1705.7 and this manual.
- Cast-in-place foundations in accordance with IBC 1705.8 and this manual.
- Helical pile foundations in accordance with IBC 1705.9
- Special inspections for seismic resistance in accordance with IBC 1705.11
- Testing and qualification for seismic resistance in accordance with IBC 1705.12
- Sprayed fire-resistant materials in accordance with IBC 1705.13
- Mastic and intumescent fire-resistant coatings in accordance with IBC 1705.14
- Exterior Insulation and Finish Systems (EIFS) in accordance with IBC 1705.15
- Fire-resistant penetrations and joints in accordance with IBC 1705.16
- Smoke Control Systems in accordance with IBC 1705.17 and DPS requirements.
- Special inspections shall also be required for proposed work that is, in the opinion of the building official, unusual in its nature, such as, but not limited to, the following examples:
  1. Construction materials and systems that are alternatives to materials and systems prescribed by this code.
  2. Unusual design applications of materials described in this code.
  3. Materials and systems required to be installed in accordance with additional manufacturer's instructions that prescribe requirements not contained in this code or in standards referenced by this code.
  4. Sheeting and shoring, underpinning, curtain walls, facade, light gage metal framing, etc.

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### EXCEPTIONS:

1. Special inspections are not required for construction of a minor nature or as warranted by conditions in the jurisdiction as approved by the building official.
2. Special inspections are not required for portions of structures designed and constructed in accordance with the cold-formed steel light-frame construction provisions of IBC Section 2211.7 or the conventional light-frame construction provisions of IBC Section 2308.
3. Unless otherwise required by the building official, special inspections are not required for Group U occupancies that are accessory to a residential occupancy including, but not limited to, those listed in IBC section 312.1.
4. Unless otherwise determined by the building official, special inspections are not required for building of Type V construction.

### 1.3 OTHER INSPECTIONS

For projects that are subject to special inspections and are over three stories, the following additional inspections shall be conducted by approved third party registered design professionals. (For purposes of this section, a “story” is defined as that portion of building included between the upper surface of a floor and the upper surface of the floor or roof next above.) **Exception:** Unless otherwise determined by the building official, these additional inspections are not required for buildings of Type V construction.

- Architectural inspections as needed to insure compliance with applicable code requirements such as:
  - a. Means of egress.
  - b. Construction type & fire-resistance rated construction.
  - c. Architectural close-in inspections and authorization of work to proceed.
  - d. Interior environments and energy conservation.
  - e. Interior finish.
  - f. Accessibility (COMAR 05.02.02).
  - g. Sound transmission control.
  - h. Other provisions of the code that will deem the building in conformance with the County Building Code.
- Mechanical Inspections – See Section 1.7.5 of this manual.
- Energy Conservation Inspections – See Sections 1.3(d) and 1.7.5(m)

### 1.4 PERMIT REQUIREMENTS

A valid building permit shall be obtained prior to start of the work.

### 1.5 STATEMENT OF SPECIAL INSPECTION

Owners of buildings and structures subject to special inspections shall submit, as part of the permit application, a Statement of Special Inspections (SSI). The SSI shall identify the name(s) of the Special Inspector (SI) and the inspection and testing agency retained by the owner to provide special inspection and testing services. This statement shall include a complete list of materials and work requiring special inspections and the inspections to be performed as per IBC Section 1704.3.1.

### 1.6 FEES AND COSTS

Fees and costs associated with the performance of special inspections shall be borne by the owner. Contractors are not permitted to hire engineers, architects and laboratories associated with special inspections.

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## 1.7 PRIMARY RESPONSIBILITIES

The following are general responsibilities of the principal parties to the construction project that are affected by special inspections. This list is not intended to be all-inclusive. Additional responsibilities may be assigned by the owner or the County to the parties identified below and others.

### 1.7.1 Owner (Owners' Representatives)

- Shall submit permit applications that include a complete Statement of Special Inspections (SSI).
- Shall retain all professionals involved in the process of special inspection including the Inspecting Architect and the Special Inspector (SI).
- Shall submit time schedules.
- Shall schedule and conduct pre-construction meeting.
- Shall notify the County when project begins.
- Shall oversee the design and construction and permitting for the project to ensure that the project is in compliance with approved construction documents.
- Shall notify the County if there is a change in the design team and reasons for the change.
- Shall assure prompt distribution of inspection activity reports.
- Shall submit all structural revisions to the Structural Engineer of Record (SER) for review and approval, prior to commencement of the work. A copy of the SER approved revisions must also be submitted to the SI and the County (when required) prior to commencement of the work.

### 1.7.2 Special Inspector (SI)

- Shall be retained by the Owner.
- Shall be a qualified person who shall demonstrate competence, to the satisfaction of the County officials, for the inspection of the particular type of construction or operation requiring special inspection. The Special Inspector shall provide written documentation to the County officials demonstrating his or her competence and relevant experience or training. Experience or training shall be considered relevant when the documented experience or training is related in complexity to the same type of special inspection activities for projects of similar complexity and material qualities.
- Shall provide construction inspection and testing services of required scope and frequency to offer a professional opinion that the constructed project was built in accordance with the County-approved construction documents, and that construction has been tested and inspected in accordance with the SSI and applicable codes and standards.
- Shall work with the owner and in concert with other members of the design team to develop the statement of special inspections.
- Shall verify that all fabricators of structural elements comply with applicable quality assurance programs.

**The SI shall provide special inspections as indicated below:**

#### **A. Sheeting and shoring**

All sheeting and shoring shall be designed by a structural engineer licensed in the State of Maryland. Designs shall be submitted to the Structural Engineer of Record (SER) for review and comment. The registered professional in responsible charge shall develop a comprehensive inspection list based on the specific needs of the project design, subject to approval by the SER. The inspection procedure shall be submitted to the County prior to commencement of construction at meeting.

##### **I. Pile/Soldier Beam Installation**

- a. Inspect all types of sheeting and shoring installation.
- b. Inspect the drilling and backfilling.

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- c. Inspect the pile size and location as well as plumbness.

### II. **Lagging**

- a. Inspect lagging for size, location, and condition.

### III. **Tieback Installation**

- a. Inspect tieback installation to verify size, anchor length, number of strands, elevation, and angle of installation.
- b. Inspect grouting of tiebacks and take samples as needed.
- c. Inspect the length of bonded zone.

### IV. **Rock Bolts**

- a. Inspect location, size, and bonded length.

### V. **Tieback Testing**

- a. Ensure that all hydraulic jacks are used to perform anchor tensioning have current calibration and that the gauge is calibrated to appropriate increments.
- b. Periodically inspect the contractor's proof test or performance test tieback.
- c. Periodically verify that the lockoff loads are consistent with approved plans and specifications.
- d. Review all contractor's data with regard to installation and testing of the tieback anchors.

## **B. Underpinning**

All underpinning shall be designed by a structural engineer licensed in the State of Maryland. Designs shall be submitted to the SER for review and approval prior to submitting for underpinning permit. The registered professional in responsible charge shall develop a comprehensive inspection list based on the specific needs of the project design, subject to approval by the SER. The inspection procedure shall be submitted to the County prior to the commencement of construction.

## **C. Soils and Foundation System Inspection and Testing Services**

### I. **Soils**

- a. Inspect proof-rolling and delineate unsuitable materials within areas proposed for support of structural fill, ground slabs and pavement areas.
- b. Conduct laboratory tests on samples of proposed fill materials.
- c. Inspect placement of engineered fill and backfill materials.
- d. Conduct field density tests on placed compacted fill.
- e. State that fill placement was performed in accordance with approved construction documents.
- f. At least one soil technician shall be present full-time during compaction of structural fill material.
- g. At least one soil technician shall be present full-time during the application of soil strengthening methods such as Dynamic Compaction, Rammed Aggregate Piers etc.

### II. **Foundations – Footings and mat foundation**

- a. Conduct foundation excavation inspection and testing to determine adequate bearing.
- b. Conduct inspection and testing to determine adequate reinforcement.
- c. State that in his/her professional opinion the footings are bearing on subgrades capable of supporting the design loads.
- d. Conduct inspection of basement and retaining walls for conformance to the County approved construction documents.

### III. **Driven Deep Foundation Elements**

- a. Inspect test pile driving and record data. The data is to include type and size of hammer, the rate of penetration, and the type and dimensions of casings.
- b. Inspect load tests on test piles and record data to determine if tests were performed in accordance with project specifications.
- c. Analyze load test data and provide driving criteria, including revised estimated pile tip elevations at test boring locations.
- d. Inspect pile driving and keep a record of each pile driven containing specifications of pile hammer used, pile dimensions, tip and cut-off elevation of piles, blow count for pile as specified, plumbness of pile, and as-built location obtained from contractor's survey, and other pertinent information pertaining to the pile and its driving.
- e. Ascertain that piles do not exceed driving tolerances as to location, plumbness, and batter angle.
- f. State that in his/her professional opinion all piles were driven and developed bearing capacity in accordance with specifications.

### IV. **Cast-In-Place Deep Foundations**

- a. Inspect the drilling of the caissons to assure sufficient penetration of transition material to develop design side wall skin friction and/or end bearing as required.
- b. Ascertain that caissons are not placed beyond established tolerances for plumbness.
- c. Inspect and approve caissons prior to placement of concrete only after the approved criteria have been met.
- d. Inspect rebar and concrete placement.
- e. State that the caissons have been placed in accordance with plans and specifications.

### V. **Records and Certification**

Upon completion of the geotechnical engineering services provide a certified document stating that to the best of his/her knowledge and in his/her opinion the construction of soils and foundations has been completed in accordance with the requirements of the project plans and specifications and the Montgomery County Building Code.

## D. **Super Structure Inspecting and Testing Services**

### I. **Concrete Structures**

(See the SSI for required verification and inspections of concrete construction)

- a. Formwork and Reinforcing
  1. Inspect formwork, shoring, and reinforcing prior to placing concrete.
  2. Authorize in writing the stripping of formwork and re-shoring prior to removal of these materials only after the criteria approved by SER have been met.
- b. Batching
  1. Inspect batching tickets and delivery operations for compliance with the project specifications.

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### c. Compression Tests

1. Label each compression cylinder identifying the truck load of concrete from which sample was taken and the exact location in construction where deposited.
2. Take samples for strength tests in accordance with ASTM C172. Mold and standard – cured cylinders for strength tests in accordance with ASTM C31 and test cylinders in accordance with ASTM C39. (Per ACI 318, section 5.6.2.4, strength tests shall be the average of the strengths of at least two 6 by 12 inch cylinders or at least three 4 by 8 inch cylinders made from the same sample of concrete tested at 28 days or at test age designated for determination of the compressive strength.)

### d. Connections

1. Inspect all connections between precast concrete and cast-in-place concrete.
2. Inspect anchor bolts, plates, etc. installed in the concrete.

## II. Post-Tension Concrete Structures

- a. Inspect formwork, tendons and reinforcing prior to placing of concrete.
- b. Inspect all placing of concrete.
- c. Inspect all tensioning and keep elongation records.
- d. Grant permission to contractor prior to all burning, cutting or capping of prestressing anchorage only after the criteria approved by SER have been met.
- e. Perform testing of concrete as for cast-in-place concrete except as modified in the specifications for post-tensioning structure.

## III. Structural Steel Structures

(Special inspections for structural steel shall be in accordance with the quality assurance inspection requirements of AISC 360, Chapter N and this manual. See SSI for required verification and inspection of steel construction other than structural steel)

- a. Check setting of anchor bolts and base plates.
- b. Determine that members are properly placed and that member sizes and locations are in accordance with approved plans.
- c. Check field welder's qualifications by examining their certificates.
- d. Inspect erected members for proper workmanship and to determine that members are plumb and level.
- e. Inspect shop and field connections for proper workmanship.
- f. Inspect and test welds and connectors as required by project specifications.
- g. Test any shop weld that appears questionable.
- h. Inspect connections to frame (such as welded connections, mechanical connections, etc.)
- i. Inspect sprayed-on fireproofing.
- j. Inspect shear studs.
- k. Inspect steel deck to insure that it is properly placed, connected and that it is sized and located in accordance with approved plans.
- l. Inspect steel joist and joist girders to insure that they are properly placed and that they are sized and located in accordance with approved plans.
- m. Inspect end anchorage, bridging connection. Make sure bridging is installed at appropriate time in erection sequence.

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### IV. Structural Masonry Structures

(Masonry construction shall be inspected and verified in accordance with TMS 402/ACI 530/ASCE 5 and TMS 602/ACI 530.1/ASCE 6 quality assurance program requirements and this manual.)

- a. Inspect placing of masonry units.
- b. Inspect placement of reinforcing.
- c. Inspect placement of grout/mortar.
- d. Conduct prism tests per contract documents.

### V. Precast Concrete Structures.

- a. Shall provide full-time inspection of fabrication process. The requirements of IBC Section 1704.2.5.2 may apply subject to County approval. See section 3.1.4 of this manual.
- b. Shall provide full-time construction inspection of the erection process in accordance with the erection plans and the construction sequence.
- c. Shall notify appropriate design professionals of record and the County if inspection and/or test results do not meet the requirements of the County-approved construction documents.
- d. Shall ensure that all required approvals are obtained prior to inspection, approval and continuation of construction.
- e. Shall submit a final report of special inspections.
- f. See Chapter 3 of this manual for additional requirements.

### VI. Records and Certification

Upon completion of the structural phase of the building, the inspection agency shall provide a certified document stating that to the best of his/her knowledge and in his/her opinion the construction of the super structure has been completed in accordance with the requirements of the project plans and specifications and the Montgomery County Building Code.

### 1.7.3 Structural Engineer of Record (SER)

- Shall be retained by the Owner.
- Shall have the ultimate responsibility for **all** structural elements of the building.
- Shall review and approve structural shop drawings including all connections.
- Shall review and approve structural members and connections designed and/or fabricated by the steel fabricator.
- Shall review and approve concrete, mortar and grout mix designs.
- Shall review and approve formwork design and criteria for removal of the formwork.
- Shall review and approve the structural aspects of the sheeting and shoring design.
- Shall review and approve construction bracing designs and other designs that affect the County approved structural documents and their field application.
- Shall review construction inspection and testing reports/records provided by the Special Inspector (SI) for conformance with the approved structural documents and the County Code and shall take appropriate action(s) as required.
- Shall review and confirm temporary and final vertical loads from the precast design calculations and erection drawings.
- Shall provide temporary and final support for gravity and lateral loads derived from the precast design at the base of the precast columns/walls.
- Shall provide temporary and final support of eccentric loads per the precast design.
- Shall review and approve precast erection drawings, including erection sequencing, bracing and grouting plans.



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- Upon completion of foundation and superstructure, shall provide a professional opinion that the project complies with the structural construction documents and specifications and Montgomery County Building Code.

### 1.7.4 Geotechnical Engineer of Record (GER)

- Shall be retained by the Owner.
- Shall prepare and issue geotechnical report of subsoil evaluation.
- Shall prepare design criteria for foundations and foundation systems.
- Shall revise geotechnical recommendations if site soil or groundwater conditions differ materially from conditions indicated on the approved geotechnical report and coordinate changes with the design professionals of record responsible for the structural design of foundations, deep foundations or other types of foundation systems.
- Upon completion of the geotechnical phase of the building, the GER shall provide a certified document stating that to the best of his/her knowledge and in his/her opinion the construction of the soils and/or foundation systems (as appropriate) has been completed in accordance with the requirements of the project plans and specifications and the Montgomery County Building Code.

### 1.7.5 Mechanical Engineer of Record (MER)

- Shall be retained by the Owner.
- Shall provide periodic inspections for compliance with the International Mechanical Code with local amendments, applicable NFPA standards and conformity with the County approved construction documents before the concealment of any mechanical components as described, but not limited to:
  - a. Light testing, insulation, support and clean out location for grease duct systems
  - b. Pressure testing of ductwork and various piping systems
  - c. Piping and duct supports and insulation
  - d. Fuel tank pressure testing and verification of proper UL listing
  - e. Inspection, testing and qualification for seismic resistance as per IBC sections 1705.11 and 1705.12 in Seismic Design Category C
  - f. Appliance location, anchorage and supports
  - g. Proper protection of penetrations of fire rated building components
  - h. Appropriate protection of fire rated shaft penetrations
  - i. Commercial and domestic dryer exhaust ducts and makeup air for dryer systems consistent with the manufacturers' installation instructions and the IMC
  - j. Emergency Standby Generators shall be installed and inspected per the IBC and NFPA 110
  - k. Hazardous exhaust systems shall be installed and inspected per the IMC and NFPA 45
  - l. General conformance to the County approved construction documents
  - m. Compliance with the International Energy Conservation Code regarding mechanical systems efficiencies, insulation, economizers and controls
- Upon completion of the mechanical work within the building, the MER shall provide a certified document stating that to the best of his/her knowledge and in his/her opinion mechanical systems have been completed in accordance with the requirements of the project plans and specifications and the Montgomery County Building Code.

### 1.7.6 Inspecting Architect

- Shall be retained by the Owner.
- Shall provide inspections as needed to insure compliance with applicable code requirements such as:
  - a. Means of egress.
  - b. Construction Type and fire-resistance rated construction.
  - c. Interior environments and energy conservation.

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- d. Interior finish.
  - e. Exterior Insulation and Finish Systems (EIFS)
  - f. Accessibility (COMAR 05.02.02).
  - g. Sound transmission control.
  - h. Other provisions of the building code applicable to the design and construction of the building that could deem the building in compliance with the County Building Code.
- Shall conduct close-in inspections prior to concealment of building elements and shall authorize proceeding with the work.
  - Shall submit a signed and sealed inspection report to the County within five working days after the completion of the inspection.
  - Shall ensure that all required approvals are obtained prior to approval of inspected item(s) and continuation of construction.
  - Upon completion of the work shall provide a professional opinion that to the best of his/her knowledge, information and belief, the work has been constructed in accordance with approved plans, specifications and the Building Code of Montgomery County and the Statement of Special Inspections (SSI).

### 1.7.7 General Contractor (GC)

- Shall have the ultimate responsibility for the construction.
- Shall provide the means, methods and materials and temporary shoring and support of construction.
- Shall coordinate construction and verify, as necessary, so that the building is capable of carrying construction loads.
- Shall take necessary action to assure a safe job site and meet OSHA, MOSHA, and other job site safety responsibilities.
- Shall submit construction documents to the County as identified at the preconstruction meeting.
- Shall notify the County and appropriate design professionals of record of construction schedules as identified at the preconstruction meeting.
- Shall schedule and coordinate that the required inspections are conducted and approved prior to proceeding with the work.
- Shall not conceal any work without prior approval of the inspecting professional.
- Shall ensure that all required approvals are obtained prior to continuation of construction.
- Shall provide temporary shoring and bracing as required to maintain stable structure during all stages of construction.
- Upon completion of the work shall provide a professional opinion that to the best of his/her knowledge, information and belief, the work has been constructed in accordance with approved plans, specifications and the Building Code of Montgomery County and the SSI.

### 1.8 PRECONSTRUCTION MEETING

A pre-construction meeting is required for every project whose elements are subject to special inspections as a condition of permit issuance. The meeting shall take place after plans have been reviewed by the County but prior to the issuance of a permit.

The SSI and the qualifications of the SI and/or the Inspection and Testing Agency Engineer of Record are also reviewed again by County building officials and approved at the preconstruction meeting prior to the issuance of a permit.

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### 1.8.1 Participants

The following members of the construction team shall participate in pre-reconstruction meetings, as required:

- Owner or owner's duly authorized representative.
- Structural Engineer of Record (SER).
- Mechanical Engineer of Record (MER).
- Special Inspector (SI).
- General Contractor (GC).
- County Building officials.
- County Fire Officials.
- Professional in charge of geotechnical services, as required.
- Professional in charge of architectural inspection, as required.
- Professional in charge of structural inspection, as required.
- Professional in charge of fabricated building elements.
- Professional in charge of mechanical inspection, as required.

### 1.8.2 Purpose

The purpose of the preconstruction meeting is to review the special inspection requirements of the project and establish communications among the project team members. The parties shall agree on the scope of inspection. The Owner shall submit a Statement of Special Inspections (SSI). At a minimum, the following shall be discussed:

- a. **Project Construction Requirements:** Project construction requirements of the Montgomery County Special Inspections Program (SIP), including construction methods, site safety and fire hazard prevention during the construction process.
- b. **Statement of Special Inspections (SSI):** The scope of special inspections for the project.
- c. **Qualifications:** Qualifications of proposed inspection professionals and testing agencies, including evidence of laboratory accreditation and technician certification from recognized authorities subject to the approval of the County.
- d. **Responsibilities:** The roles and responsibilities of each party.
- e. **Communication:** Communication channels between the County and owner's representatives and members of the design and construction teams.
- f. **Phased Construction:** Requirements for phasing of permits, certificates of completion and occupancy requirements.
- g. **Revision:** Requirements for revised shop drawings, revisions to construction documents, etc.

### 1.9 REPORTS AND COMMUNICATION FLOW

The SI shall keep records of inspections. The SI shall furnish inspection reports to the building official as required by the SSI and this manual, to the owner or owner's designee and to the registered design professional as appropriate. Discrepancies shall be brought to the immediate attention of the contractor for correction. If the discrepancies are not corrected, the discrepancies shall be brought to the attention of the building official and to the registered design professional of record, prior to the completion of that phase of the work. A final report of inspections documenting required special inspections and correction of any discrepancies noted in the inspections shall be submitted.

Any deviation from the approved construction documents must be brought to the immediate attention of the registered design professional of record and the County code official.

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The SI shall provide reports of special inspection signed and sealed by the professional in charge as required by the SSI and this Special Inspections document within 10 business days. Deficiency reports shall be submitted within five business days.

### **1.10 DEFICIENCY REPORTS**

Deficiency reports shall describe the nature and specific location of the deficiency and include a description of the action recommended by the appropriate professional in charge. Each deficiency item, by discipline, shall be sequentially numbered.

### **1.11 FINAL REPORT OF SPECIAL INSPECTIONS**

Upon completion of the specified special inspections and testing, the SI, and other design professional(s) of record providing special inspections and observation and testing services shall submit a final report of special inspections to the County, owner and others designated by the owner. Reports shall indicate that work inspected was done in conformance to approved construction documents.

### **1.12 PERSONNEL QUALIFICATIONS**

In accordance with the provisions of the IBC, except for registered design professionals, field personnel shall be certified by examination through ICC, ACI, AWS, ASNT, NICET, WACEL or other organizations whose programs are recognized by the County. Inspection and Testing Agency personnel shall perform only those services in which they have demonstrated competency through such a recognized certification or registration program.

#### **1.12.1 Unusual Functions**

In the event there is no certification program applicable to a specific function, the SI shall submit, to County, a signed statement attesting to the competency of personnel and identifying the basis upon which such statement is made.

#### **1.12.2 Laboratory Qualifications**

Laboratory facilities must be accredited by an agency such as A2LA, NVLAP, WACEL or other organizations whose programs are recognized by the County. All laboratory facilities must meet the requirements of ASTM E329, ASTM D3740, and ASTM C1077 as applicable. The SI shall accredit on-site laboratory facilities in accordance with ASTM E329.

#### **1.12.3 Resumes**

The SI shall submit resume and documentation, for approval by the county, of inspection and testing personnel and laboratories prior to the pre-construction meeting.

### **1.13 CHANGES IN SPECIAL INSPECTIONS TEAM**

In the event that the design professionals or inspection and testing agencies of record need to be changed during the course of the project, the owner shall notify the County. The County shall approve or deny such replacement. The owner shall provide to the County a written explanation as to the reason for such change; shall identify the replacement organization or individual with whom he has contracted; shall furnish the documentation necessary to show such organization or individual is qualified for the work as required herein, and shall provide a revised inspection agreement signed by the new party. The County shall stop work if, in the County's opinion, work otherwise would proceed without adequate inspection, and shall authorize a recommencement of work only at such time as it is satisfied that the integrity of the inspection can be assured.

### 1.14 OBLIGATIONS OF PARTIES TO THE CONSTRUCTION

The organizations and individuals performing inspections are responsible for the adequacy of their work. In addition, any conditions which they believe are **not justifiable or outside the scope of this agreement** shall be reported to the owner, general contractor, and the code official.

### 1.15 MODIFICATION TO APPROVED DRAWINGS

All individuals involved with this program in a construction inspection capacity or in the design of the project are charged with the responsibility to report to the County representative any error, omission, inconsistency or ambiguity in the approved plans. Appropriate revisions shall be developed. When time permits, or when the changes are in the opinion of the appropriate County representative, substantial enough to so warrant, such revisions shall be submitted to the County for review and approval. Otherwise, a statement of revision shall be submitted to the County by the architect or engineer of record prior to commencement of work.

### 1.16 DETECTION OF CRITICAL PROBLEMS

Any individual involved in the inspection function who detects a condition which in his or her opinion justifies a stop-work proceeding or other remedial measure, shall so notify the supervisor of the function in question. If the supervisor is not present, or if the supervisor is unable or unwilling to take what is deemed to be appropriate corrective measures, the person detecting the condition in question shall directly contact the code official.

### 1.17 STATEMENT OF SPECIAL INSPECTIONS (SSI)

Permit applicants are required to submit a Statement of Special Inspections prepared by the registered design professionals in responsible charge as a condition for permit issuance. This statement shall include a complete list of materials requiring special inspections, the inspections to be performed and a list of the individuals, approved agencies and firms intended to be retained for conducting such inspections.

The model statement can be used “as is,” but is designed with the flexibility to be modified to meet the unique requirements of a specific project.

The completed Statement of Special Inspections shall be submitted with plans and specifications as part of the permit application process.

The Schedule of Special Inspections identifies the scope of inspection and testing services, following IBC Section 1705 requirements. Where special inspection or structural testing is required for seismic resistance as per IBC sections 1705.11 and 1705.12 respectively, the Statement of Special Inspections shall identify the designated seismic systems and seismic-force resisting systems that are subject to special inspections. Each contractor responsible for the construction of a seismic-force-resisting system, designated seismic system or a seismic-resisting component listed in the statement of special inspections shall submit a written statement of responsibility to the County and the owner prior to commencement of work on the system or component. The contractor’s statement of responsibility shall contain acknowledgement of awareness of the special requirements contained in the Statement of Special Inspection, as per IBC Section 1704.4.

The qualifications of the Special Inspections Professional of Record and/or the Inspections and Testing Agency Engineer of Record will be reviewed and approved by the County as part of the permitting process.

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### **1.18 FINAL REPORT OF SPECIAL INSPECTIONS AND ARCHITECTURAL INSPECTIONS AND CERTIFICATE OF COMPLETION**

The Final Report of Special Inspections and Architectural Inspections and the Certificates of Completion shall be placed on the individual company letterhead and shall be submitted to the County after the special inspections specified for the project have been completed.

## FINAL REPORT OF SPECIAL INSPECTIONS

Project Name: \_\_\_\_\_

Project Address: \_\_\_\_\_

Permit Number: (A/P): \_\_\_\_\_

SPECIAL INSPECTOR (SI): \_\_\_\_\_

All deficiency items reported in the last interim report(s) have been completed. To the best of my information, knowledge and belief, the special inspections specified for this project, itemized in the Statement of Special Inspections submitted for permit, have been completed. In my professional opinion, building elements subject to special inspections have been found to comply with County-approved construction documents and project specifications.

Respectfully submitted,

\_\_\_\_\_  
Signature of Special Inspector

\_\_\_\_\_  
Date

\_\_\_\_\_  
Seal

## FINAL REPORT OF ARCHITECTURAL INSPECTIONS

Project Name: \_\_\_\_\_

Project Address: \_\_\_\_\_

Permit Number: (A/P): \_\_\_\_\_

INSPECTING ARCHITECT OF RECORD: \_\_\_\_\_

All deficiency items reported in the last interim report(s) have been completed. To the best of my information, knowledge and belief, the architectural inspections required for the project that include:

- Architectural inspections as needed to insure compliance with applicable code requirements such as:
  - a. Means of egress
  - b. Construction Type & fire-resistance construction
  - c. Interior environments and energy conservation
  - d. Interior finish
  - e. Exterior Insulation and Finish Systems (EIFS)
  - f. Accessibility (COMAR 05.02.02).
  - g. Sound transmission control
  - h. Other provisions of the code that will deem the building in conformance with the County Building Code
- Architectural close-in inspections and authorization of work to proceed have been completed.

In my professional opinion, building elements subject to architectural inspections have been found to be in compliance with County-approved construction documents and project specifications.

Respectfully submitted,

\_\_\_\_\_  
Signature of Inspecting Design Professional of Record

\_\_\_\_\_  
Date

\_\_\_\_\_  
Inspecting Design Professional of Record Seal



## FINAL REPORT OF MECHANICAL INSPECTIONS

Project Name: \_\_\_\_\_

Project Address: \_\_\_\_\_

Permit Number: (A/P): \_\_\_\_\_

INSPECTING MECHANICAL ENGINEER OF RECORD: \_\_\_\_\_

All deficiency items reported in the last interim report(s) have been completed. To the best of my information, knowledge and belief, the special inspections specified for this project, itemized in the Statement of Special Inspections submitted for permit, have been completed. In my professional opinion, mechanical systems subject to special inspections have been found to comply with County-approved construction documents and project specifications.

Respectfully submitted,

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Signature of Inspecting Mechanical Engineer of Record

Date

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Inspecting Mechanical Engineer of Record Seal

## CERTIFICATE OF COMPLETION

Project Name: \_\_\_\_\_

Project Address: \_\_\_\_\_

Permit Number: (A/P): \_\_\_\_\_

STRUCTURAL ENGINEER OF RECORD (SER): \_\_\_\_\_

All deficiency items reported in the inspection reports have been corrected. To the best of my information, knowledge and belief, the special inspections specified for this project have been completed. In my professional opinion, the structure is constructed in accordance with the approved construction documents and project specifications and is in compliance with County building codes and regulations.

Respectfully submitted,

\_\_\_\_\_  
Signature of Structural Engineer of Record

\_\_\_\_\_  
Date

\_\_\_\_\_  
Seal

## CERTIFICATE OF COMPLETION

Project Name: \_\_\_\_\_

Project Address: \_\_\_\_\_

Permit Number: (A/P): \_\_\_\_\_

PRECAST ENGINEER OF RECORD (PER): \_\_\_\_\_

All deficiency items reported in the inspection reports have been corrected. In my professional opinion, the structure has been fabricated and constructed in accordance with the approved construction documents and project specifications and is in compliance with County building codes and regulations.

Respectfully submitted,

\_\_\_\_\_  
Signature of Precast Engineer of Record

\_\_\_\_\_  
Date

\_\_\_\_\_  
Seal

## CERTIFICATE OF COMPLETION

Project Name: \_\_\_\_\_

Project Address: \_\_\_\_\_

Permit Number: (A/P): \_\_\_\_\_

GEOTECHNICAL ENGINEER OF RECORD (GER): \_\_\_\_\_

All deficiency items reported in the inspection reports have been corrected. To the best of my information, knowledge and belief, the geotechnical inspections specified for this project have been completed. In my professional opinion, the soil and/or foundation system for this structure is constructed in accordance with the approved construction documents and project specifications and is in compliance with County building codes and regulations.

Respectfully submitted,

\_\_\_\_\_  
Signature of Geotechnical Engineer of Record

\_\_\_\_\_  
Date

\_\_\_\_\_  
Seal

## CERTIFICATE OF COMPLETION

Project Name: \_\_\_\_\_

Project Address: \_\_\_\_\_

Permit Number: (A/P): \_\_\_\_\_

MECHANICAL ENGINEER OF RECORD (MER): \_\_\_\_\_

All deficiency items reported in the inspection reports have been corrected. To the best of my information, knowledge and belief, the mechanical inspections specified for this project have been completed. In my professional opinion, the mechanical systems for this structure is constructed in accordance with the approved construction documents and project specifications and is in compliance with County building codes and regulations.

Respectfully submitted,

\_\_\_\_\_  
Signature of Mechanical Engineer of Record

\_\_\_\_\_  
Date

\_\_\_\_\_  
Seal

**Montgomery County Special Inspections Program**

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**CERTIFICATE OF COMPLETION**

Project Name: \_\_\_\_\_

Project Address: \_\_\_\_\_

Permit Number: (A/P): \_\_\_\_\_

GENERAL CONTRACTOR (GC): \_\_\_\_\_

All deficiency items reported in the inspection reports have been corrected. To the best of my information, knowledge and belief, the special inspections specified for this project have been completed. In my professional opinion, the structure is constructed in accordance with the approved construction documents and project specifications and is in compliance with County building codes and regulations.

Respectfully submitted,

\_\_\_\_\_  
Signature of General Contractor

\_\_\_\_\_  
Date

## CHAPTER 2 DEFINITIONS

The following words and terms shall, for the purposes of this manual and the County's Special Inspections Program have the meaning delineated below.

**Architect of Record (AR):** The Registered Design Professional retained by the owner to design and specify architectural construction and whose signature and seal appears on the County-approved architectural construction documents.

**Certification:** A statement of professional opinion by a registered design professional that indicates that the item(s) under consideration meet the requirement of the County-approved construction documents and this manual. Certifications shall bear the original seal and signature of the design professional making the statement.

**Completion Letter:** A certification letter signed and sealed by the design professional(s) of record who performed special inspections stating that the construction elements specified for special inspections have been inspected and conform to the County-approved plans, specifications and this manual.

**Construction Documents:** Plans and specifications and other documents prepared for the purposes of obtaining a building permit.

**County-Approved Documents:** Construction documents approved by Montgomery County Building Official.

**Fabrication and Erection Documents:** Written, graphic and pictorial documents prepared or assembled after issuance of a building permit describing the design, location and physical characteristics of building components or materials necessary for fabrication, assembly or erection of project elements.

**Final Report of Special Inspections:** A certification by the Special Inspector (SI) indicating that specified special inspections are completed and meet the requirements of the County-approved construction documents, project specifications and this manual.

**Inspection:** The periodic observation of work and the performance of tests for certain building or structure components.

**Inspection and Testing Agency:** Agency or agencies retained by the Owner and approved by the County to perform special inspections and materials testing as required by IBC and the County. Contractors are barred from retaining the services of inspection and testing agencies for Special Inspections.

**Mechanical Engineer of Record (MER):** The registered mechanical engineer retained by the owner to have ultimate responsibility to design or specify mechanical systems and specifications.

**Non-Structural Elements:** Elements of a building that are not primary or secondary structural elements such as exterior curtain walls and cladding, non-load-bearing partitions, stair railings, etc.

**Owner:** Owner or owners of the freehold premises or lesser estate therein, a mortgagee or vendee in possession, assignee of rents, receiver, executor, trustee, or lessee in control of a building/structure to be constructed/altered or the owner's duly authorized representative.

**Special Inspector (SI):** The registered design professional retained by the owner to provide special inspections and material testing services as specified by appropriate design professionals of record and

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approved by the County. The SI maybe an agent of - or independent of - the Inspection and Testing agency, the project's SER, or the Mechanical Engineer of Record.

**Statement of Special Inspections (SSI):** A statement prepared by the Owner and appropriate registered design professionals in responsible charge and submitted by the permit applicant for review and approval by the County. The SSI indicates the scope of special inspections applicable to a construction project and identifies the names and qualifications of the design professionals and inspection and testing agencies that will provide those services.

**Structural Engineer of Record (SER):** The registered structural engineer retained by the owner to have ultimate responsibility to design or specify structural documents and specifications.



## CHAPTER 3

### ADDITIONAL REQUIREMENTS

#### 3.1 PRECAST CONCRETE

This section delineates the responsibility of individuals in charge of design, fabrication, erection, structural support, and handling of precast concrete building elements and its associated material testing and handling.

##### 3.1.1 Project A/E Team

Project A/E team shall issue specific precast specifications including, but not limited to, erection methods, tolerances and final tolerances and appropriate safety regulations.

##### 3.1.2 Precast Erector

The precast erector shall perform or obtain a pre-erection survey of all bearing surfaces and embedded hardware in the cast-in-place concrete construction intended for the support or connection of the precast concrete. Any deviation from the precast drawings shall be coordinated with both the precast engineer and the structural engineer of record.

##### 3.1.3 Precast Engineer

The Precast Engineer is the registered design professional in charge of precast design and fabrication and shall be responsible for and shall provide the following services:

- Prior to erection of any precast pieces; precast engineer must arrange a preconstruction meeting with owner, SER, GC, precast supplier, inspectors, and erector's foreman. The topics of this meeting are to include on the safety, alignment issues, crane operation, and any other item that SER requires to be discussed. Minutes of this meeting including a signature sheet of attendees with the date and location of the meeting must be recorded and submitted to the County prior to start of erection of precast elements.
- Submit to the Structural Engineer of Record (SER) for review and approval the following:
  - Detailed signed and sealed erection and temporary bracing/shoring plan that indicates overall sequence and specific localized erection procedures. It must indicate when and at what stages temporary bracing is to be installed. It must indicate precisely what connections are required and when, what length and size of weld, etc.
  - Detailed piece drawings of every fabricated piece.
  - Provide specifications indicating erection and fabrication tolerances. Specify in advance of the erection what is "in tolerance" and what would be "out of tolerance". Specification must also indicate what is acceptable and what is not.
  - Complete design calculations - all elevations.
  - Confirm detailing and manufacturing of elements per design calculations.
  - Signed and sealed drawings showing **erection sequence, bracing and grouting sequence and timing plan** for the precast elements of the entire building.
  - Provide all connection details with a numbered sequence and indicate the required percentage of completion of each connection at any stage of the erection.
  - Prepare signed and sealed sketches and obtain approval from the SER, for all field modifications prior to field installation.

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- Upon completion of the work shall provide a professional opinion that to the best of his/her knowledge, information and belief, the work has been constructed in accordance with approved plans, specifications and the Building Code of Montgomery County and the SSI.

### 3.1.3 Erection Inspections

The erection process must be conducted under the full-time observation of the Special Inspector. Daily reports must be furnished by the Special Inspector. The inspection and inspection reports must address the items identified in the *erection, bracing and grouting sequence and timing plan* and the following:

Columns – erection and final

- Plumbness
- Grout under and above base plates in daps
- Grout at column splices
- Bolts, dowels, grout and installation

Light walls – erection and final

- Plumbness
- Grout

Spandrel Connections – erection and final

- Bolts
- Grout

Inverted tee beams – erection and final

- Lengths
- Connections
- Grout

Tees – Welds – erection and final

- To tees
- To walls

### 3.1.4 Fabricator Approval

- The fabricator shall submit the dates and the number of pours to the inspection agency prior to fabrication of the precast elements.
- A minimum of 20% of the fabricated pieces shall be inspected by the inspection agency.
- The special inspector (SI) shall be present at the first cast of each product to check mold dimensions, plate locations, reinforcing etc. prior to pouring concrete.
- Other inspection tasks shall include checking concrete mix, placement procedures, molding concrete cylinders for testing, stressing operations, record keeping and inspection of finishes.
- Periodic unannounced inspections are also required.
- Upon completion of the fabrication process the special inspector (SI) shall provide a certified document stating that to the best of his/her knowledge and in his/her opinion the fabrication of the precast elements has been completed in accordance with the requirements of the project plans and specifications and the Montgomery County building code.